PF2 SECURITIES EVALUATIONS, INC.

CDOs: A Risk and Regulation Review

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Agenda

- Background and (Crisis) Overview
- CDO Intricacies: Qualitative & Quantitative
- Regulation

Background and (Crisis) Overview

CDO Performance

State of the Market

CDO Performance

CDO Performance

Depends on *Your* Perspective

- *Current** CDO Performance (for the "hold-to-maturity," real-money investor), in terms of upgrade/downgrade ratios, principal writedowns:
  - Good (better than *expected*): CLOs, EM CDOs, Cat Bonds
  - Bad (worse than *expected*): CBOs
  - Ugly: ABS CDOs (incl. CDO^2)

* Subject to change

(a) Synthetics probably worse off than cash CLOs/CDOs. However, cashflow CDOs' typical advantage of being able to gain significant excess spread when reinvesting in troubled market is *substantially* hindered by large bid-offer spreads.

(b) TruPS CDOs are struggling, especially REIT TruPS, but bank/insurance deals – historically strong performers – are rapidly following suit. MV CDOs have struggled: many have liquidated.

CDO Performance

Depends on *Your* Perspective

- CDO Performance (for the "fair value," leveraged investor):
  - Ugly: Everything*

* With the possible exception of certain short duration (secondary) tranches

- Why?

CDO Performance

Why?

- Combination of (a) tough economic -- and hence default/recovery rate -- environment and (b) demand and supply mechanics
- Economic environment: consult the credit indices: LCDX should suffice. ABX, less so. See correlation chart.

Correlations Among Credit Indices

	HVOL	XO	HY HB	HY 100	LCDX
IG	49.9%	35.1%	31.6%	80.7%	82.4%
HY B	58.7%	71.9%	45.3%	83.1%	86.1%
HY BB	43.0%	74.3%	57.5%	86.2%	85.7%

Source: PF2 Securities Evaluations, Inc.

CDO Performance

Demand and Supply Mechanics

- Large Supply:
  - CDO, CDO^2 liquidations: often small bucket for CDOs in other CDOs (more regularly frequented by ABS CDO managers, whose CDOs are liquidating, than CLO managers)
  - Other CDO noteholders, often pressured by upper management, eager to clean the slate
- Less Demand:
  - General lack of ability and willingness to add "tainted" risk
  - Increased disclosure requirements

  - Seeing increased interest from "typical" distressed shops (and even a private equity fund, here and there…).

State of the Market

State of the Market

Vicious Circle: De-leveraging in a Stressed Market

Source: UBS Financial Services, Inc.

And that's not to mention…

a higher cost of funding

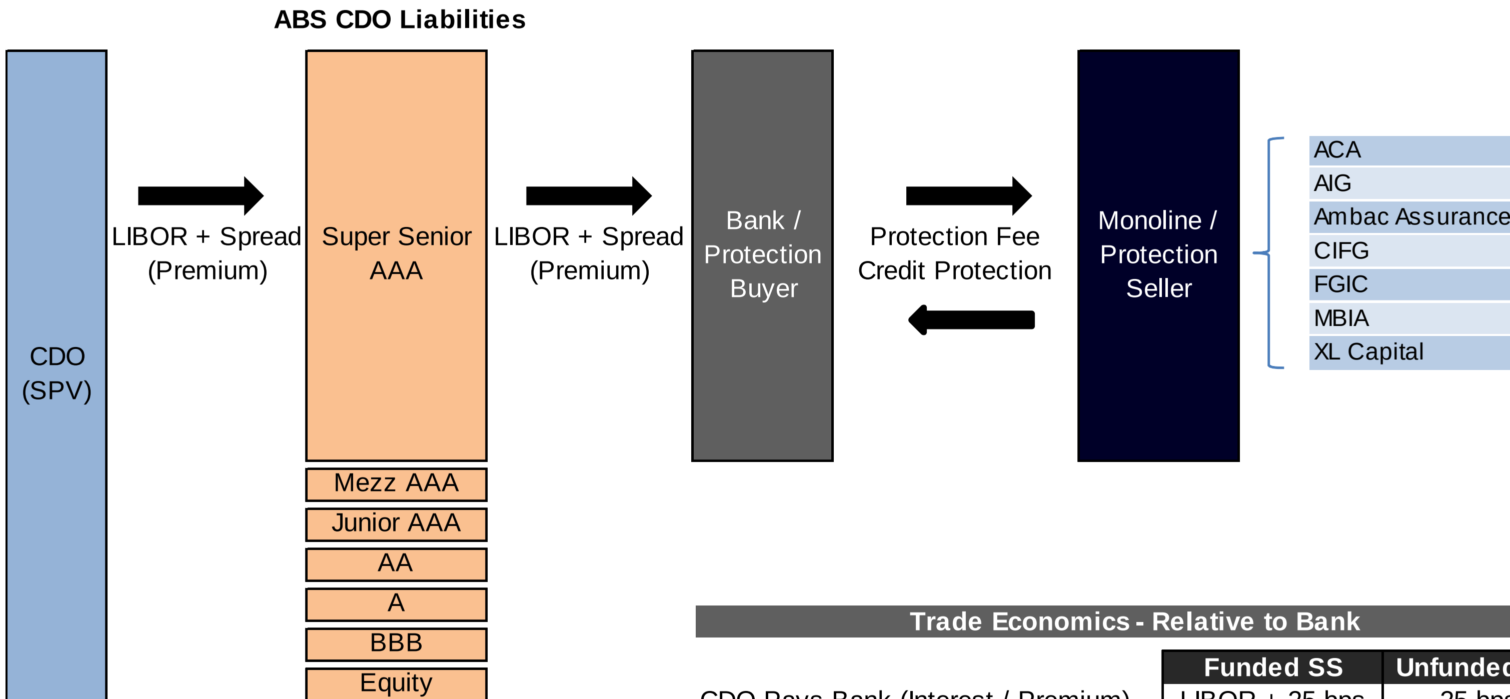
TYPICAL HEDGE FUND HAIRCUTS

Asset Class	Mar-07	Mar-08	Δ%
Synth Super Sen	1%	2%	100%
AAA ABS CDO	4%	N/A	N/A
AAA CLO	4%	20%	400%
AAA RMBS	2%	20%	900%
AA Corp Bond	3%	12%	300%
IG CDS	1%	5%	400%
BB HY Bond	15%	40%	167%
BB Lev Loan	20%	35%	75%
Equities	15%	20%	33%

The above example, courtesy of Citi, is out of date, shown solely for educational and illustrational purposes, and is not to be relied upon.

State of the Market

Negative Basis Trade: Why Banks Hold (so much) Super Senior Exposure



Trade Economics - Relative to Bank		
	Funded SS	Unfunded SS
CDO Pays Bank (Interest / Premium)	LIBOR + 25 bps	25 bps
Bank Pays Monoline (CDS Premium)	(15 bps)	(15 bps)
Bank's Cost of Capital/Funding*	LIBOR	-
Bank's Profit (p.a.)	10 bps	10 bps

* May differ from bank to bank. Shown only for illustration purposes.

State of the Market

What Does the Future Hold?

- Covered Bond Market Interest…
- CLOs are still getting done; funding gap is dynamic, but seems to be decreasing…

CDO Intricacies

Qualitative Extras

Quantitative Extras

CDO Intricacies

What Worries Me (an example)

- To increase deal capacity, banks started to hold on to super senior tranches, while offloading some of the equity tranches, often in the form of PPNs, to pension, endowment and other varieties of public funds.
- An increasing, regular reliance on manager quality.

What Worries Me, an Example

Bloomberg News Article (June 2007)

- “[State X] Investment Council, which funds education and government services for children, has $222.5 million invested in [CDO] equity tranches. The council decided in April to buy an additional $300 million of them. That investment would be 2 percent of the $15 billion it manages.”
- ``We got very interested in them just because a broker brought them to our attention," [council’s fixed-income portfolio manager], says. [She] says the investment is worth the risk because the fund may be able to get higher returns than it can from bonds.
- The council is relying on advice from bankers who are selling the CDOs, [council’s PM], says. ``We manage risk through who we invest with," she says. ``I don't have a lot of control over individual pieces of the subprime.”

What Worries Me, an Example

Bloomberg News Article (June 2007), continued…

- ``I have trouble understanding public pension funds' delving into equity tranches, unless they know something the market doesn't know," says Edward Altman, director of the Fixed Income and Credit Markets program at New York University's Salomon Center for the Study of Financial Institutions.
- ``To just rely on somebody's reputation is absolving your own fiduciary responsibility as a manager," Satyajit Das says.
- Citigroup spokesman Stephen Cohen says public funds pick CDOs based on their management. ``The evaluation centers on the track record and expertise of the manager," he says.

- Ideas on "evaluating the manager," will follow shortly…

What Worries Me, an Example

Bloomberg News Article (June 2007), continued…

- Chriss Street, treasurer of Orange County, California, the fifth-most-populous county in the U.S., says no public fund should invest in equity tranches. He says fund managers are ignoring their fiduciary responsibilities by placing even 1 percent of pension assets into the riskiest portion of a CDO.

- ``It's grossly inappropriate to take this level of risk,” he says. ``Fund managers wanted the high yield, so Wall Street sold it to them. The beauty of Wall Street is they put lipstick on a pig.”

Qualitative Extras

Qualitative Extras

Overview

- Qualitative Analysis
  A. Review Available Documents
  B. Evaluate Manager

Qualitative Extras

A. Review Available Documents

- Ability to review indenture and other deal documents, as available,
  - offering document (if any)
  - collateral management agreement
  - legal opinions
  - hedge documents
  - trustee or collateral administrator reports

Qualitative Extras

A. Review Available Documents

- Critical "qualitative" terms vary from deal to deal
- Examples
  - par build-up (deep discounts, purchase/redemption of CDO's notes)
  - par haircuts (credit deterioration)
  - principal to interest (IOs, combination securities, trading gains)
  - interest to principal (reinvestment OC test)
  - "Event of Default" (definition/process)
  - "Defaulted Securities" (definition/carrying value)
  - "key man" provision, if any

Qualitative Extras

B. Evaluate Manager

- Manager and management style may impact tranche valuations. Does manager hold equity?
- Key Considerations:
  - experience managing assets of <u>that</u> asset class
  - size and years in business
  - credit selection process
  - staffing and resources, personnel turnover
  - financing options and availability / liquidity management
  - market positioning / strategy / business plan
  - diversification of liabilities, clients, products
  - internal audit and control

Quantitative Extras

Quantitative Extras

- Structural Nuances
  - turbo features, excess spread leakages
  - rating-based haircuts
  - GIC account / counterparty risks
- Concentration – Current and *Potential*
  - issuer, industry, servicer, rating distribution (per CDO or per portfolio)
  - 2nd lien, covenant-lite, SME loans, esoteric assets
- The Usual Suspects
  - default rate and timing
  - recovery rate and lag
  - correlation
  - prepayment
  - callability (particularly for TruPS CDOs)

Regulation

Valuation Principles & Standards

Valuation Principles & Standards

Valuation Principles

Overview

- International Organization of Securities Commissions' (IOSCO) Nine Principles
- Managed Funds Association's (MFA) Policies and Procedures

Valuation Principles

Key Points (see Appendix)

- Thorough documentation of policies and procedures
- Identification and consistent application of valuation methodologies
- High level of independence to each evaluation application
- Evaluation arrangements should be made transparent to the investor
- Controls and procedure confirmations, especially concerning any exceptions

Valuation Standards

Challenge

- True market valuations
    - often unavailable
    - potentially biased
    - unreliable
- Intrinsic “self-marks”
    - subject to manipulation
    - not truly independent
    - inconsistent with accounting standards

Valuation Standards

Overview

- FASB, GAAP (FAS 157)
- NAIC, SAP
- IASB, IFRS
- CDOs, Indenture

Valuation Standards

FASB, GAAP (FAS 157)

- Summary
  - adopts uniform definition of "fair value"
  - does not expand use of "fair value" to any new circumstances
- Retains "exchange price" concept
- Elements of "fair value" definition
  - hypothetical ***sale*** (not purchase)
  - by orderly transaction (not "forced sale" or liquidation)
  - between market participants
  - in principal or most advantageous market
  - as of the measurement date

Valuation Standards

FASB, GAAP (FAS 157)

- Distinguishes
  - observable inputs (based upon market data)
  - unobservable inputs (based upon best information available)
- Illiquid assets
  - no need to undertake all possible efforts to obtain information about market participant assumptions
  - BUT must not ignore information about market participant assumptions if reasonably available without undue cost and effort
- "Fair value" must also reflect the risk(s) associated with a specific valuation technique or inputs

Valuation Standards

IASB, IFRSs

- IASB Discussion Paper on *Fair Value Measurements* issued on November 2006 soliciting comments on whether to adopt the "fair value" approach of FAS 157 for International Financial Reporting Standards (IFRSs)
- Comment period ended May 2007
- IASB approach to FAS 157 still under discussion
- FASB and IASB have entered into a Memorandum of Understanding (February 2007) and a Conceptual Framework intended to lead to convergence of standards

Valuation Standards

NAIC, SAP

- Fair Value Subgroup adopts FAS 157's "fair value" definition for Statutory Accounting Principles (SAP):

  > "the price that would be received to sell an asset or transfer a liability in an orderly transaction between market participants at the measurement date"

- Subgroup also indicates "significant desire to mitigate variations between GAAP and SAP"
- SAP will likely adopt "fair value" definition similar to FAS 157

Valuation Standards

CDOs, Indenture

- Cash-flow CDOs (other than market value CDOs) do not track market value of most assets
- But, must track market value of
  - defaulted securities
  - excess concentrations of low-rated securities
    1. CLOs, excess with ratings of CCC/Caa or lower
    2. ABS CDOs, in some cases, excess of below investment grade securities

Valuation Standards

CDOs, Indenture

- "Market value" definition establishes algorithm for determining market value, typically:
  - bids, *average of three/lesser of two*
  - assigned value, Approved Pricing Service (as defined)
  - self-marks, 30 consecutive days only
  - $0, in the absence of bids or pricing service values
- CDOs could face increased risk of EOD in the absence of reliable bids or pricing service assigned values

Appendix

Appendix

IOSCO's Nine Principles

1. *Comprehensive, documented policies and procedures should be established for the valuation of financial instruments held or employed by a hedge fund;*
2. *The policies should identify the methodologies that will be used for valuing each type of financial instrument held or employed by the hedge fund;*
3. *The financial instruments held or employed by hedge funds should be consistently valued according to the policies and procedures;*
4. *The policies and procedures should be reviewed periodically to seek to ensure their continued appropriateness;*
5. *The Governing Body should seek to ensure that an appropriately high level of independence is brought to bear in the application of the policies and procedures and whenever they are reviewed;*
6. *The policies and procedures should seek to ensure that an appropriate level of independent review is undertaken of each individual valuation and in particular of any valuation that is influenced by the Manager;*
7. *The policies and procedures should describe the process for handling and documenting price overrides, including the review of price overrides by an Independent Party;*
8. *The Governing Body should conduct initial and periodic due diligence on third parties that are appointed to perform valuation services; and*
9. *The arrangements in place for the valuation of the hedge fund's investment portfolio should be transparent to investors.*

Appendix

MFA's Policies and Procedures

1. *Independent verification of the existence of financial assets and liabilities;*
2. *Controls for the processing of purchases and sales of financial assets and liabilities;*
3. *Reconciliation of the hedge fund manager's recorded financial assets and liabilities to statements produced by independent sources;*
4. *Obtaining confirmations and performing periodic reconciliations of over-the-counter (OTC) derivatives with counterparties;*
5. *Maintenance of sufficient internal documentation of transactions involving non-publicly traded financial investments (other than OTC derivatives) for the purpose of facilitating and ensuring the verification of the fund's financial assets and liabilities;*
6. *Compliance with relevant accounting standards' fair value concepts;*
7. *Meaningful oversight of fair value determinations and the valuation process;*
8. *Verification and validation of the prices used for financial assets and liabilities;*
9. *Clarification of the role of each party in the valuation process, with pricing sources for instruments identified and resolution procedures for exceptions;*
10. *Frequency of the determination of NAV;*
11. *Periodic closing of books and records consistent with appropriate accounting principles to ensure accurate financial statements and reports to investors;*
12. *Review and recordation of all financial and non-financial assets and liabilities (including management fees, incentive fees and other liabilities);*
13. *Allocation of income and expenses to investors; and*
14. *Presentation of standardized financial statements and reports to investors.*

Resources

- MFA: Sound Practices for Hedge Fund Managers
- NAIC: SAP Review of FAS 157

Q & A